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English-language Translation of German Application (5 pages)

QUICK-ACTION TENSIONING DEVICE FOR CABLE CONTROL SWITCHES

- [0001] The present invention relates to a quick-action tensioning device for cable control switches, having a holding element, to which a cable can be fastened in a clamping manner, and having a housing, which is connected with the holding element.
- [0002] Quick-action tensioning devices for cable control switches exist in which the cable can be fastened between two clamping jaws, a movement of the cable in one direction being permitted as a result of the clamping jaws. Such a quick-action tensioning device is relatively comfortable to mount because the cable is pulled in the desired position and fixed. However, it is disadvantageous that no precision adjustment is provided after an adjusting of the cable. The quick-action tensioning devices are usually used in connection with cable control switches which are used in different environments, so that a lengthening or shortening of the cable can take place as a result of thermal influences. If such a change of the cable length cannot also be adjusted by the quick-action tensioning device, the cable control switch may be triggered too early or too late, which would result in considerable danger.
- [0003] It is therefore an object of the present invention to provide a quick-action tensioning device for cable control switches which permits a rougher adjustment as well as a precision adjusting.
- [0004] This object is achieved by means of a quick-action tensioning device having the characteristics of Claim 1.
- [0005] If the quick-action tensioning device has precision adjusting devices between the housing and the holding element, the cable can first be clampingly fixed to the holding element, whereby a rough adjustment can be carried out. Should the cable length change as a result of thermal lengthening or shortening or because of expansion phenomena, a precision adjusting can be carried out, so that the triggering of the cable control switch will always take place at the desirable point.
- [0006] According to a preferred embodiment of the invention, a threaded shaft is provided between the housing and the holding element, the distance between the housing and the holding element being adjustable by means of a nut. As a result, a continuous adjustment of the cable tension can be carried out, in which case the nut

is preferably constructed as a knurled nut, so that the precision adjusting can take place without any tool.

[0007] A device for detecting the cable tension is preferably provided in the housing. Since usually a certain force has to be overcome for the operation of a switch, the cable should initially also have a certain tension in order to ensure a secure triggering. In this case, a display for the cable tension is advantageously provided at the housing, so that the precision adjusting can take place without any additional measuring of the cable tension, because the latter is shown by means of the display. This is a considerable simplification because even small changes of length of the cable can be detected.

[0008] For a secure fastening of the cable, the holding element has a plate, so that the cable can be clamped between the plate and a body. The cable is preferably deflected between the plate and the body, so that particularly high friction forces occur as a result of the clamping and high forces can also be absorbed by the quick-action tensioning device for cable control switches.

[0009] In the following, the invention will be explained in detail by means of an embodiment with reference to the attached drawings:

[00010] Figure 1 is a perspective view of an embodiment of a quick-action tensioning device;

[00011] Figure 2 is a perspective view of the quick-action tensioning device during the rough adjustment; and

[00012] Figure 3 is a perspective view of the quick-action tensioning device during the precise adjustment.

[00013] A quick-action tensioning device 1 comprises a holding element 2 for fixing a cable 3. For this purpose, the holding element 2 is equipped with a plate 4, so that the cable 3 can be clamped between the plate 4 and a body of the holding element 2 by means of a screw 5. In this case, the cable 3 is guided through a central opening in the holding element 2 and is provided with a deflection 6 in the area of the holding element 2, so that the cable 3 emerges again from a front side of the holding element 2 by means of an end section 7.

[00014] The quick-action tensioning device 1 also has a housing 8 which is connected by way of a threaded shaft 9 with the holding element 2. A knurled nut 10 is mounted on the threaded shaft 9, by way of which knurled nut 10 the distance can be changed between the holding element 2 and the housing 8.

- [00015]** The housing 8 contains a device for detecting the cable tension, such as a spring element, by means of which the pretensioning at the threaded shaft 9 can be detected.
- [00016]** In addition, a display 11 for the cable tension is provided on the housing. A stationary marking 12 is arranged in a window at the display 11, behind which marking 12 a dial 13 can be moved as a function of the cable tension. In the embodiment, the desired cable tension is indicated by a center line 13, so that deviations between the marking 12 and the line 13 are easily recognizable.
- [00017]** For fastening a cable to the quick-action tensioning device 1, the cable 3 is first pulled through the holding element 2 and is fastened to the holding element 2. For this purpose, the plate 4 is pulled tight by way of an L-shaped hexagon key 14, the cable 3 being brought roughly into the desired position.
- [00018]** As illustrated in Figure 3, a precision adjusting can take place subsequently. The cable 3 fastened to the holding element 2 will then be moved relative to the housing 8, by way of a rotation of the knurled screw or, if greater forces have to be expended, by way of a monkey wrench 15 which is applied to the threaded shaft 9. As a result, the cable tension is changed, which becomes visible at the display 11 of the housing 8. As soon as the marking 12 and the line 13 coincide, the cable 3 has the desired tension. Should the cable length change because of thermal expansion, a retightening can take place in an effortless manner by a precision adjusting by means of the knurled nut 10.